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8800 Cal Center Drive
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Arnold Schwarzenegger
Governor

January 5, 2006

Mr. Steve Mayer, P.E.
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3411 Olson Street
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THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL (DTSC) COMMENTS ON THE PHASE III REMEDIAL ACTION REPORT (RAR), ON-BASE CONSTRUCTION EFFORT, FORMER MCCLELLAN AIR FORCE BASE (DSR 875-2)

Dear Mr. Brunner:

DTSC has reviewed the *Groundwater Operable Unit Phase III Remedial Action Report On-Base Construction Effort*, Former McClellan Air Force Base Sacramento, California, dated November 2005.

Draft comments (DSR 875-2) were distributed electronically on December 19, 2005. Final comments are attached (memorandum from Mr. Howard Duke). Please consider Mr. Duke's recommendations as comments on the document.

If you have any questions regarding these comments/recommendations, please contact me at (916) 255-3688.

Sincerely,

Kevin Depies, P.G.
Project Manager
Engineering Geologist
Office of Military Facilities

Attachment

cc: See next page

Mr. Paul Brunner
January 5 2006
Page 2

cc: Mr. Richard Howard
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Mr. James Taylor
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MEMORANDUM

TO: Kevin Depies
Project Manager
Office of Military Facilities

FROM: Harold R. Duke, PG *Harold R. Duke*
Engineering Geologist
Northern California Geologic Services Unit

REVIEWED BY: Michael O. Finch, PG *MOF*
Senior Engineering Geologist
Northern California Geologic Services Unit

DATE: December 14, 2005

SUBJECT: GSU REVIEW OF GROUNDWATER OPERABLE UNIT PHASE III
REMEDIAL ACTION REPORT ON-BASE CONSTRUCTION EFFORT,
FORMER McCLELLAN AIR FORCE BASE, SACRAMENTO,
CALIFORNIA (DSR# 875)

ACTIVITY REQUESTED:

Per your request, the Department of Toxic Substances Control (DTSC) Geologic Services Unit (GSU) has reviewed the document entitled *Groundwater Operable Unit Phase III Remedial Action Report On-Base Construction Effort, Former McClellan Air Force Base, Sacramento, California (DSR# 875)* (Phase III On-Base RAR). The report was prepared for the Department of the Air Force, Air Force Base Conversion Agency by URS Corp., Sacramento, California. The document is dated November 14, 2005.

REVIEW ACTIVITIES

The GSU was requested to evaluate the technical adequacy, content, and completeness of the subject report. Review activities consisted of reading the report, reviewing background information on the Groundwater Operable Unit (GWOU) at the former McClellan Air Force Base (McAFB) including the November 2004 *GWOU Phase*

III Environmental Remediation Plan On-Base Expansion (Phase III On-Base ERP), the November 2004 *60% Construction Drawings and Specifications Phase III Remedial Design (On-Base)* (Phase III On-Base 60% Design), and the March 2005 *On-Base Groundwater Phase III Implementation Construction Work Plan* (Phase III On-Base WP, and providing comments and recommendations as necessary.

PROJECT SUMMARY

The objective of the Phase III On-Base RAR was to document the construction of the on-base portion of the Phase III of the interim remedial action for groundwater at the former McAFB. The selected interim remedy for groundwater comprises groundwater extraction by pumping and surface treatment. The Phase III activities included installing 77 wells (32 extraction wells, 14 monitoring wells, and 31 piezometers), upgrading 9 existing wells to Phase III extraction wells, installing conveyance lines, well vaults, and electrical service for the wells, modifying groundwater treatment systems to accommodate additional flow from Phase III extraction wells, and collecting baseline and start-up/proveout samples from Phase III on-base extraction wells. GSU's comments on the Phase III On-Base RAR follow below.

GENERAL COMMENTS

Based on a review of the Phase III On-Base ERP, GSU understands that in addition to step drawdown tests on each extraction well, long-term aquifer tests were to be conducted on eight Phase III extraction well locations. The information obtained from the long-term aquifer tests was to be used to improve the predictive capabilities of the McClellan groundwater model, provide data to estimate the hydraulic characteristics of the aquifer in vicinity of the well, and aid in the selection of an appropriate pumping rate at which to operate the well. The GSU notes the inclusion of the test logs and data sheets and a discussion of the step-drawn tests conducted at each extraction well in the Phase III On-Base RAR, however there is no reference to the proposed long-term aquifer tests.

GSU Recommendation #1:

The GSU recommends the Phase III On-Base RAR be revised to address the lack of a reference to the long-term aquifer tests proposed in the Phase III On-Base ERP.

Based on a review of the Phase III On-Base WP, GSU's understands that soil gas samples were to have been collected from the boring advanced for proposed extraction well P3OBEW1AB at 10 foot intervals from 10 feet below ground surface (bgs) to 100 feet bgs to characterize soil gas composition throughout the vadose zone. The GSU sees no reference to the proposed soil gas sampling in the Phase III On-Base RAR.

Well P3OBEW1AB was located in an area off-base suspected to have been impacted by historic McAFB activities. Soil gas data from well P3OBEW1AB was to be used to characterize contamination as well as to aid the design of remedial alternatives.

GSU Recommendation #2:

The GSU recommends revising the Phase III On-Base RAR to address the lack of a reference to the soil gas sampling proposed in the Phase III On-Base WP.

SPECIFIC COMMENTS

Section 5.1 (Overall Performance), Sentence 4, Paragraph 1, Page 5-1: It is noted here that "All extraction wells installed were able to produce their designed flow rate". Based on a review of the Extraction Well Pump Sizing forms included in Appendix C, it appears that for three of the existing wells converted during the Phase III activities to extraction wells (EW-330, EW-383, and EW-337) that pumping rates proposed in the Phase III On-Base RAR (and included in the groundwater flow model) could not be achieved. In addition, although the proposed pumping rate provided in the Phase III On-Base WP (10 gallons per minute [gpm]) was achieved for Phase III extraction well P3OBEW1AB (EW-455), a higher pumping rate (15 gpm) was applied for this well in the groundwater model as presented in the Final GWOU Phase III ERP. The GSU questions whether modeling was conducted to show that capture of the contaminant plume would be attained at a pumping rate of 10 gpm in extraction well EW-455.

GSU Recommendation #3:

The GSU recommends revising the Phase III On-Base RAR to include a discussion of the consequences of the disparity between the proposed and actual pumping rates for extraction wells EW-330, EW-383, EW-337, and EW-455, and the ability to capture and control all groundwater plumes that exceed State of California MCLs, with particular attention paid to well EW-455.

Table 3-1 (Well Construction Details): The screen slot size presented for well EW-431 in Table 3-1 (0.020 inch) does not match the screen slot size presented for this well in Table 3-2 (0.010 inch).

GSU Recommendation #4:

The GSU recommends revising the Phase III On-Base RAR such that Tables 3-1 and 3-2 are in agreement and accurately presents the constructed screen slot size for well EW-431.

Table 3-2 (Variations in Construction of Extraction Wells): As presented in Table 3-2, no explanation is given for the variance from the proposed screen slot size for extraction wells EW-431 and EW-456 (0.010 inch rather than the proposed 0.020 inch). Also, as dielectric couplers were not installed on extraction wells EW-499 through EW-453 and EW-456, these wells will need to be especially scrutinized in the future to detect potential corrosion problems.

GSU Recommendation #5:

The GSU recommends revising the Phase III On-Base RAR to include in Table 3-2 a reference to the reason for the variation in screen slot size for wells EW-431 and EW-456 from that originally proposed. In addition, special attention during future monitoring events will need to be given to wells EW-499 through EW-453 and EW-456 to look for signs of corrosion due to the lack of dielectric couplers on these wells.

Table 3-3 (Variations in Construction of Monitoring Wells): As presented in Table 3-3, no explanation is given for the variance from the proposed screen slot size for monitoring wells MW-580 through MW-583 and MW-588 (0.010 inch rather than the proposed 0.020 inch).

GSU Recommendation #6:

The GSU recommends revising the Phase III On-Base RAR to include in Table 3-2 a reference to the reason for the variation in screen slot size for wells MW-580 through MW-583 and MW-588 from that originally proposed.

If you have any questions, please contact me at 916/255-3695 or at bduke@dtsc.ca.gov.